

REMARKS

The Examiner is thanked for the due consideration given the application. The specification has been amended to remove language that was added in the previous amendment.

Claims 1-20 are pending in the application. The claims have been amended to clarify their language. The amendments to claim 1 find support at page 2, lines 24-30 of the specification.

No new matter is believed to be added to the application by this amendment.

Entry of this amendment under 37 CFR §1.116 is respectfully requested as placing the application in condition for allowance and for complying with a matter of form set forth in the Official Action. Alternately, entry is requested as placing the application in better form for appeal.

Objection to Amendment

The amendment filed December 13, 2007 is objected to as introducing new matter into the disclosure. The Official Action asserts that the phrase "where a is greater than zero" represents new matter.

The phrase "where a is greater than zero" does not represent new matter (as will be discussed in greater detail below). However, the phrase "where a is greater than zero" has been removed from the specification upon entry of this amendment.

Objection to the Disclosure

The disclosure is objected to as containing informalities. The Official Action asserts that the upper limit of  $x$  and  $y$  cannot be determined from the information in the specification.

The Official Action notes that page 8, lines 12-13 of the specification sets forth that  $x+y+z=1$  in an embodiment of the present invention. However, the entire paragraph sets forth more information about this parameter, stating:

In a further embodiment the following further relationship applies:  $x+y+z=1$ . Zirconium, titanium and the transition metal are preferably built into the B-site of the perovskite. By changing the relationship between the zirconium proportion  $x$  and the titanium proportion  $y$ , the morphotropic phase boundary necessary for the piezoelectric properties of the PZT of tetragonal and rhomboidrical crystal structure can be set empirically from measured piezoelectric characteristics.

That is, the upper limits of  $x$  and  $y$  are defined empirically so that the desired crystal structure and piezoelectric properties can be obtained. So it is relative proportions of  $x$  and  $y$  that set these characteristics, and expressing an absolute upper value of  $x$  and  $y$  is of no consequence to one wishing to practice the present invention.

Rejection Under 35 USC §112, First Paragraph

Claims 1, 12 and 13 have been rejected under 35 USC §112, first paragraph, as failing to comply with the written description requirement. This rejection is respectfully traversed.

Claim 12 of the present invention recites: "a proportion of palladium is selected ranging from 0% up to and including 30%." Claim 13 of the present invention recites: "the proportion of palladium amounts to a maximum of 5%." The Official Action asserts that these limitations lack sufficient support in the specification.

However, page 11, lines 1-11 of the specification states:

In accordance with a further embodiment of the piezoceramic body with the piezoceramic composition, *the body features at least one metallization selected from the group silver, copper and/or palladium.* The piezoceramic body is manufactured in particular by joint sintering of the piezoceramic composition and the metallization (cofiring). The metallization can be an alloy of silver and palladium in this case. In particular in this embodiment *the proportion of palladium is selected so as to range from 0% up to and including 30%.* In this case 0%, means that almost no palladium is present. *Preferably the proportion of palladium is a maximum of 5%.* (Emphases added).

As a result, claims 12 and 13 are clearly and fully supported by the specification.

The Official Action asserts that the limitation to claim 1 "where a is greater than zero" is new matter. However, the specification at page 9, lines 8-19 states:

For example the powder mixture consists of (1-a) lead oxide (PbO), b rare earth metal oxide (RE<sub>2</sub>O<sub>3</sub>), x zirconium oxide (ZrO<sub>2</sub>), y titanium oxide (TiO<sub>2</sub>) and Z<sub>Mn</sub>,

manganese oxide ( $\text{MnO}$ ). A component of the powder mixture can also be a mixed oxide such as zirconium titanate ( $(\text{Zr}_x\text{Ti}_{1-x})\text{O}_2$ ) which is accessible through a hydrothermal precipitation for example. The **lead component (1-a) is set in this case** such that before the beginning of a sintering a percentage excess of lead oxide is present. This excess of lead oxide advantageously leads to a compression of the powder at a relatively low temperature. (Emphasis added).

By setting the lead component (1-a), the disclosure teaches that one has the option to select among multiple possible values of (1-a). Thus a must be greater than zero in order to have this option.

Also, United States case law points out the specification need not describe the claimed invention in *ipsis verbis* to comply with the written description requirement. *In re Edwards*, 568 F.2d 1349, 196 USPQ 465 (CCPA 1978). The test is whether the originally filed specification disclosure reasonably conveys to a person having ordinary skill that applicant had possession of the subject matter later claimed. *In re Kaslow*, 707 F.2d 1366, 217 USPQ 1089 (Fed. Cir. 1983). Also, the Examiner has the initial burden of presenting evidence or reasons why persons skilled in the art would not recognize in the applicants specification disclosure a description of the invention defined by the claims. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

In this case, the specification sets forth teachings sufficient for one of ordinary skill to recognize that the limitation "where a is greater than zero" corresponds to the

teachings concerning PbO in the specification. As a result, this limitation is in compliance with the written description requirement.

This rejection is believed to be overcome, and withdrawal thereof is respectfully requested.

**Rejection Under 35 USC §112, Second Paragraph**

Claims 1-20 have been rejected under 35 USC §112, second paragraph, as being indefinite. This rejection is respectfully traversed.

The Official Action asserts that b and z are not defined in the claims. However, claim 1 has been amended to include definitions of b and z.

The Official Action asserts that claims 7 and 9 are indefinite for not including a step of actually production the composition. However, claim 7 (upon which claim 9 depends) has been amended to include a step of "growing the composition."

The Official Action asserts that the relationship between sinter temperature and particle growth is not clear. However, claim 7 recites: "growing the composition at a specific sinter temperature in which a maximum particle growth of the piezoceramic composition is determined." This relationship is clear in light of the disclosure. See, e.g., Figures 1A and 2A.

The Official Action asserts that the upper limit of x and y cannot be determined from the specification. However, this issue has been clarified above.

As a result, the claims are sufficiently clear and well defined. The claims are thus clear, definite and have full antecedent basis.

This rejection is believed to be overcome, and withdrawal thereof is respectfully requested.

Conclusion

The Examiner is thanked for considering the Information Disclosure Statement filed November 29, 2004 and for making an initialed PTO-1449 Form of record in the application.

Prior art of record but not utilized is believed to be non-pertinent to the instant claims.

The objections and rejections are believed to have been overcome, obviated or rendered moot, and that no issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment

to Deposit Account No. 25-0120 for any additional fees required  
under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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